THE

AGRICULTURAL EDUCATIONAL INSTITUTIONS

OF

HUNGARY.

WITH A BRIEF DESCRIPTION OF THE ORGANIZATION

OF THE

ROYAL AGRICULTURAL ACADEMY OF MAGYAR-ÓVÁR.

★

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MAGYAR-ÓVÁR
1902.

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In remembrance

of the visit of english agriculturists from the County of Essex

TO HUNGARY

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I.

Agricultural Education in Hungary

from times past down to the present.

Agricultural education is of very ancient date in Hungary where it always was considered to be of greatest importance. It is hardly too much to say that in this line of public instruction the Hungarians were at the head of other nations. In the eighteent century already Hungary could boast of an agricultural school based on a much higher level than those which for the same purpose and at that time had been established in other countries. As a country of eminent agricultural interests and agriculture being one of the principal occupations of her inhabitants, Hungary has been providing means for the diffusion of agricultural knowledge among her population at already an early period.

Lectures on agriculture were first given at the University of *Nagy-Szombat* in 1630 and at the college of *Sárospatak* in 1650. A century later agriculture was taught at the noblemen military colleges of *Szempcz* (1763) *Vácz* (in 1768) and *Tata* (1776).

In 1779 a patriotic clergyman named Samuel Tessedik established the first farmschool at *Szarvas* in which the students where taught not only agriculture but trade.

A chair for agriculture as well as experimental grounds were established at the hungarian University of sciences soon after her removal from Nagy-Szombat to Buda in 1777, lectures on agriculture being given at said university up to 1814. In 1787 the University of Buda was endowed with a chair for veterinary Science.

The famous Georgicon academy of *Keszthely* founded and liberally endowed by Count Georg Festetich, a nobleman of high conception, was opened in 1797.

The Georgicon was for a period of fifty years (1797—1848) the model agricultural college of Hungary, possessing chairs for agriculture, for laws, for stud-farming, for forestry and huntsmanship, for horticulture, for rural engineering, for peasant husbandry and a course for rural housekeeping for women. From 1797—1848 the college has turned out 1444 men possessing in a high degree the qualities requisite for their post.

In 1800 for the farmers of the county of Torontál a farmschool was established and supported by Count Christoph Nákó at *Nagy-Szent-Miklós*.

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In 1818 the Archduke Albert of Sachsen-Teschen converted his castle of Magyar-Óvár into an agricultural school, originally for the purpose of educating by means of it the staff of agricultural stewards, managers and superintendents needed for his large estates. Up to 1848 the school had merely a private character. During 1848—1850 on account of war the school was closed, of this school more will be said in the following pages.

In 1839 count Károlyi and count Battyáni established a school at *Rohoncz* with the aim of educating their own stewards therein.

The year 1840 saw the opening of an agricultural school at *Nagy-Kőrös,* in 1845 a school for teaching orphans farming and gardening was opened at *Zelemér.* In 1846 a farmschool was established at *Szőkehalom* for the special requirements of that fertile part of the country which is called Alföld (low land). The outburst of war in 1848 brought all these institutions to a temporary close the Georgicon as well as the school at Magyar-Óvár at the same time coming to a stand-still.

From the above it will be seen that with the exception of the chairs for agriculture at the University, rural teaching in the period before 1848 was given only in private schools which were founded and endowed by noblemen and owners of large estates, who for having acted in this manner must be looked upon as pioneers of progress in agriculture and as benefactors to the commonwealth.

It is now some fifty years that after a dull season which for some lenght followed the end of the war in 1849 a new period began with the reopening of Archduke Alberts school of Magyar-Óvár in 1850 by the Austrian gouvernment under the control of which it remained up to 1869 in which year it was transferred to the Hungarian gouvernment. During the time of Austrian gouvernment the language in use has been German, from 1869—1880 German and Hungarian, no language but the Hungarian being permitted since 1884.

From 1850 Magyar-Óvár for a time was the only school of agriculture in Hungary. This remained so up to 1865, when the agricultural College at *Keszthely* was reopened, not in the shape of the old Georgicon but as a *national school for agri- and sylviculture* with the exclusive use of the hungarian language, the attendance of this school being from the beginning quite numerous.

In 1858 a chair for *cyclopaedia of agriculture* was established at the *royal polytechnical Joseph-institute* of Buda which after having been in activity for 30 years, by want of attendance succumbed in 1888.

Of the schools of lower grade that of *Nagy-Szent-Miklós* was reopened in 1855 which having undergone several reorganizations is still in activity.

As soon as Hungary recovered her ancient Constitution in 1867 the gouvernment at Budapest busily set to work to remodel and establish agricultural schools in different parts of the country. Within the space of a couple of years the Ministry of agriculture founded the colleges of *Debreczen* (1868) of *Kolozs-Monostor* (1869). In 1874 the college of agriculture for Upper-Hungary was opened at *Kassa.* The agricultural school of *Magyar-*

Óvár was converted into an academy in 1874. The course of studies in the four colleges of Keszthely, Debreczen, Kolozsmonostor and Kassa lasts three years the first year being devoted to practical instruction and labour in the fields. The four colleges mentioned are in every respect well equipped, they are housed in fine and modern buildings and conducted in a most modern way, to each of them being adjoined an estate of middle size on which the different branches of agriculture can be seen in operation. With the exception of Keszthely, in connection with the colleges are boardinghouses for the benefit of the students. These colleges are open to all youths over 15 years who have passed six out of the eight classes of gymnasia or Real-school. The school of Debreczen has been removed from the bustle of the city being now sited at a certain distance from town in the centre of a large farm called „Pallag“.

Besides the academy and the four colleges there is in Hungary a great number of agricultural schools of a lower grade which we may call *farming* or *tillage* schools. The object of these schools is to educate the sons of small farmers and peasants in a way which will enable them to make a living as managers of small farms or as foremen and head-labourers on large estates. The course of these schools is of two years duration and of an entirely practical character.

The oldest of these schools was established in 1865 in connection with the agricultural college of *Keszthely*, it was followed by the school of *Debreczen* in 1867 which however has been transferred to *Karczag* in 1877. In 1870 *Liptó-Ujvár* was opened but later transferred to *Rimaszombat.* More schools of this kind were established at *Ada* (1884) at *Csákova* (1886) at *Szent-Imre* (1886) at *Nagy-Szent-Miklós* (1880) which school was named „Christof Institute“ after its founder, at *Algyógy* founded in 1892 by count Kun-Kocsárd, at *Pápa* (1894), at Kecskemét (1895), at *Lugos* (1895), at *Jászberény* (1896), at *Hódmezővásárhely* (1896), at *Komárom* (1897), at *Breznóbánya* (1899), at *Szilágysomlyó* (1901), all of which being maintained by the gouvernment. Besides these schools there are four more of the same description in the Transylvanian part of the kingdom which are supported from a fund belonging to the saxons of german origin who were early colonists in that part of the country, their immigration being encouraged many hundred years ago by several kings of Hungary. Their schools are those of *Bestercze* established 1870, *Földvár* establ. 1871, *Medgyes* establ. 1871 and *Nagy-Szeben* establ. 1888.

Farmingschools which are supported partly by countyship or community and partly by state subsidy exist at *Békéscsaba* founded in 1897, at *Szabadka* founded in 1897. The *Csákvár* tillage school was founded 1891 and is supported by Count Nicholas Eszterházy.

Each of these schools lay stress upon specialities in conformity with the peculiar needs of the region of Hungary which it is intended to serve.

For the purpose of spreading agricultural knowledge among the rural population as widely as possible winterschools are maintained by the gouvernment which were attended during the past year by more than 300,000 persons, all of them either cultivators, landed proprietors or teachers.

Agricultural education in Hungary now comprises:

Higher teaching which is given by the agricultural academy (average yearly attendance 157 students).

Intermediate education represented by the four colleges (average yearly attendance 502 students).

Purely practical teaching represented by the 21 farm schools (attendance 550 pupils).

Itinerant teaching represented by 7 departemental professors who travel from place to place, giving lectures on agricultural matters and four travelling experts for the cultivation of hops, of hemp, for dairying and for promoting rural association.

Professors (twelve in number) for giving a course of instruction in the preparatory schools for those who are preparing to be teachers of rural schools.

The staff of agricultural education of the Ministry consists of 185 persons who are employed as directors, professors, junior professors stewards, travelling professors, experts, assistants and stipendists.

At Budapest the state maintans a *veterinary Highschool,* at Selmeczbánya an *academy for forestry* and four forestry schools of lower grade at Királyhalma, Liptóujvár, Vadászerdő and at Görgény-Szent-Imre for the education of wood wardens.

Other institutions existing in Hungary in connection with agricultural education and supported by the gouvernment are the following: The dairy school at *Sárvár* and four schools for dairy labourers at Munkács, Gödöllő, Kisbér and Nagy-Szécsény.

The horticultural school at *Budapest* and five schools for garden-labourers at Baja, Nagybocskó, Lőcse, Torda and Orosháza.

The school for meadow-cultur and drainage at *Kassa.*

The school for poultry-farming at *Gödöllő.*

The high course for Vine-Culture at *Budapest* and eight schools for vineyard-labourers at Bihardiószeg, Tarczal, Nagyenyed, Ménes, Tapolcza, Eger, Kecskemét and Pozsony.

The expenditure for agricultural instruction including the Veterinary highschool and exclusive of the forestry-, Vine-culture-, gardenschools and the school for meadow-culture and drainage for the year 1903 will amount to 2,382,232 korona (L 99259).*)

As it may be judged from the above, Hungary seems well provided which schools for teaching the different branches of agriculture. The schools are well organized, their sites having been chosen in conformity with the requirements of the agriculturist in the different parts of the country, the further development of these schools being at the same time an object of constant care of the Ministry of agriculture.

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*) L stands for pound sterling.

Front view of the agricultural academy of Magyar-Óvár.

II.

The Agricultural Academy of Magyar-Óvár.

Location—Surrounding country—Studies—Special institutions.

The agricultural academy is located at Magyar-Óvár which is the principal town of the county of Moson and the centre of a forty-thousand-acre estate belonging to the Archduke Frederick. The county of Moson is one of the smallest, it spreads over an area of 788 square miles. With the except of the foot-hills of a range of mountains called „Lajtahegység" which for some distance are protruding into the county the land is of a flat character. The soil is of alluvial formation. Owing to its fitness for fieldcrops agriculture is the principal occupation of the inhabitants. Agricultural produce will always meet with a ready sale at Vienna the capital of our austrian neighbours. The population is 89217, seventy per cent of which are of rural occupation. The productive area is 430000 acres. Its distribution may be classified thus: 35·8 per cent are large estates held by a few large proprietors, 0·9 per cent are estates of a middle size, (700—1400 acres) 3·6 per cent are small estates (250—700 acres), 59·7 per cent being small farms belonging to the peasantry. Staple products in the line of fieldcrops are wheat, rye and barley, in the line of animal production milk and butter which latter two are exported in large quantities into Austria. There is in the county a local rural society with a membership of 376, a co-operative society for the breeding and rearing of cattle consisting of

792 members, nineteen co-operative dairy associations of which seventeen are in operation with a daily output of 1000—1500 lbs. of butter, most of which is sent to Vienna where it sells at a good price; the price loco county being 12 pence per pound. A co-operative society for egg-collection and export is about to be established. There are two associations for mutual aid.

Industry is represented by a number of establishments the largest of which being devoted entirely te the manufacture of agricultural machinery. There are establishments for the fabrication of an explosive called meganite and cartridge-shells, two destilleries, two flourmills, one brewery.

The town of Magyar-Óvár having now 3816 inhabitants is of very ancient origin. During the stay and sway of the Romans in Pannonia on the spot where it now extends there was maintained a military post which in the time of the Migration of the Nations has been fortified serving as a fortress. Later, after the land was taken by the Hungarians the fortress was turned into a royal castle.

In 1818 Albert Kasimir duke of Sachsen-Teschen who was married to Maria Christina daughter of Queen Maria Theresa founded and endowed the agricultural school of Magyar-Óvár. From 1818—1849 it served principally for the purpose of educating stewards for the archducal estates. After the end of the war in 1849 the school was reorganized by the austrian gouvernment under the control of which it remained up to 1869.

In 1874 the Hungarian gouvernment converted the school into an academy. During the time of austrian regime the german language exclusively from 1869—1884 both German and Hungarian, since 1884 no other language but Hungarian being permitted. From 1818—1900 the academy of Magyar-Óvár turned out 4891 men well versed in scientific farming of which 1328 were foreign alumni.

The academy of Magyar-Óvár now represents the highest grade of agricultural teaching in Hungary, its constitution in the main being the same as of the agricultural academies of other countries.

Since 1869 the academy is under the control of the Ministry of agriculture, her aim is to train young men who intend to farm their own properties or those of others in a most rational manner and to produce agronomic Scientists, men of study and research, professors of agriculture, inspectors and officials for the public services connected with agriculture.

The academical year is divided into two terms or semesters, the winter term lasting from October to March, the summer term from March to August. At the end of each semester, in February and July the students are subjected to verbal examination and are marked in each study. Passing the examinations and properly completing the course each of the students receives a certificat from the academy giving in detail his standing in each study and his average standing, together with remarks on his industry and behaviour during his time of study. The students are not admitted as a rule before the age of 18.

Students are only allowed to matriculate on producing certificates proving that they have passed the final examination (testimonium maturitatis) of a gymnasium or real-school and that they have had at least one year's practise or training in farmwork on a well managed estate or farm. The matriculation fee for regular students is L 7 a-year. The academy is also open to „free auditors“ by which is generally meant such men who are of age and who wish to make a stay of some time there to perfect themselves in some branches of study, the fee for each study chosen being seven shillings.

Studies taught. The studies taught in the *junior year* are: Inorganic and agricultural chemistry, mineralogy and soils, anatomy and physiology of farm animals, zoology, breeding of farm animals, cattle raising and dairying, anatomy and physiology of plants, applied botany, diseases of plants, climatology, mechanics, farm implements and machinery, plant culture, farming in general. *Senior year.* Fieldcrops and fodderplants, meadowculture, pomology, horticulture, horse-swine- and sheepbreeding, veterinary science, rural technology comprising brewing, destilling and sugarmaking, rural economy and statistics, rural laws, farm management, farm accounts, book-keeping, surveying, rural constructions, bee-fish- and silkwormculture.

In the ordinary classes the number of weekly hours is 26—29 during the winter term, and 22—27 during the summer term, besides this a certain number of hours a week is devoted for labour and practical training in the laboratories, for teaching at sight by „rounds“ in the fields, garden, vineyard, arboretum and the stables.

Each chair of study in conformity with its peculiar requirements is supplied with either a laboratory or a museum of collections and models and with the agricultural periodicals necessary.

The academy has a considerable library. It contains over 11000 volums and is particularly strong in rural literature embracing every branch of modern agriculture.

From time to time excursions are made to outlying districts in connection with the study of agriculture and its various manifestations. Each summer an excursion, the plan of which in carefully laid a long time in advance is made to estates at some, often considerable, distance from the site of the academy.

There is a three weeks vacation at Christmas and a two weeks vacation at Easter besides the regular long vacation which lasts during the month of August and September.

A separate course for engine-drivers is annually held.

There are eight scholarships of L 15 each attached to the academy provided by the gouvernment, six by private benefactors of L 10—L 60 which must be competed for annually.

The students being externs engage rooms paying monthly. For L 5—L 8 a month board and lodging are obtainable good enough to satisfy the demands of even fastidious young men.

The teaching staff and instructional force of the academy comprises the director, nine professors, two lecturers, six assistants and one assistant farm manager. Five stipendists are employed as junior-assistants, which do not ordinarily take part in the instructional work in the academy, but are free to devote themselves to special study.

In connection with the academy there is an association of well-to-do students called „segély-egylet“ (association for pecuniary aid) paying part of cost of board and lodging for students with inadequate means.

In 1902 the number of regular students in the junior year was 65, in the senior year 87, the number of free auditors being five, making a total of 157. To the greater part (55—60 per cent) the students after finishing return home to farm on their parents estates or on rented land as the case may be. 25—30 per cent take situations as assistant farm managers, the rest 10—15 per cent prepare for professors and for other branches of agricultural occupation.

The general budget of the agricultural academy is the following:

Expenditure :		
Salaries of the staff	L	4918
Amount necessary for scientific apparatus, farm and garden	L	4790
total	L	9708
Income :		
Amount received from sale of farm and garden produce	L	2020
Amount received from matriculation and tuition fees	L	690
Amount received from productive funds	L	162
total	L	2872
Deficit covered by the gouvernment	L	6836

Institutions more or less closely connected with the academy.

Experiment station for agricultural machines. The object of this station which in 1869 has been established in connection with the chair for agricultural machinery, is to test newly invented agricultural machines and implements, or those already in use, from both the practical and theoretical points of view, to determine their fitness for the work for which they are designed. It is further the business of the station which is still now an integrant part of the chair for agricultural machinery to supply to the farmers as complete and detailed information as possible on all questions relating to agricultural machines. As an average the number of machines and implements annually sent to the station for trial, amounts to eight. The station has no staff of its own the professor of farm-machinery being as a rule entrusted with its management. Yearly expenditure: L 50—90.

Agricultural-chemical control and experiment station. The chief occupation of this station, which began its activity in 1873 is the examination and control of commercial fertilizers, feeding stuffs and other products of which the purchaser needs to know the character and value. Charges for analytical work are rated on the base of a regular scale of fees, the cost of the examinations being paid by the person sending the materials to the station, whether he be farmer or dealer. For some years already the station carries on investigations in behalf of ascertaining the gluten content of different varieties of wheat and the influence of same on the baking quality of the flour.

The following table shows the number and kind of materials analyzed:

	in 1900 samples	in 1901 samples
Commercial fertilizers	579	657
wheat and flour	183	436
feeding stuffs	63	67
soils	32	30
other materials	191	152
total	1048	1342

A number of buildings intended for the housing of this station is now in course of erection. The staff of the station consists of a manager and of three assistant chemists. The managment is entrusted to one of the professors of chemistry. The budget of the stations amounts to L 1000 a-year.

Station for seed control and for plant physiology and pathology. The business of this stations seed control section consists of seed testing for purity and germinating ability, microscopic examination of oilcakes, bran, meal and flour for the detection of adulterations. Examination of deseased plants and fournishing instructions for their combat being the chief object of the other section of this station. As a special feature of the stations working program we may mention the thorough inquiry into the nature of the life of the sugarbeet from seed to seed which has been carried on with great care now for some lenght of time. In 1901 the station examined 1321 samples of seeds, 16 samples of feeding stuffs, the number of phytopathological cases the station had been engaged with during said year amounting to 3013. For seed testing only fees are charged. In case of clover seed merchands are required to keep it in bags provided by the station with tags showing their purity. Originally (in 1878) the station has been established for seed testing only, in 1898 it has been separated from the academy and made independent having now its own housing and experimental plots. The staff of the station consists of the manager whose place at present is held by the professor of phytopathology, two assistants, one junior-assistant; Occasionally when required the staff is augmented by one or two hands. Annual expenditure: L 700.

Station for the care of farm animals. The chief object of this station is to treat surgical cases and to afford by so doing opportunity for instruction in veterinary science. This station being in close connection with the chair for veterinary science has no separate staff. It began its activity in 1892.

Station for meterological observations. The business of this station is to make daily observations of temperature, barometric pressure, precipitation, cloudiness, air-currents. Previous to 1865 observation was constrained to precipitation only. The observations are wired day-for-day to the central-station which is at Budapest. The average of temparature for Magyar-Óvár is 49·1° F., of precipitation 22 inches. This station being without a staff has no budget of its own; the post of observator is held by an assistant of chemistry.

Station for fieldcrops and plant culture experiments. This station has been designed to promote the advancement of plant culture by carrying out experiments with the co-operation of the farmers in the various districts of Hungary, the objects of these experiments being the following: testing varieties of plants, study of typical soils, seed-growing, melioration, testing of fertilizers, study of grasses and the grassrequirements of different localities, pot-cultures. The distribution of seeds, plants and fertilizers, examinations of plants and grasses as to homogeneousness are also part of the occupation of this station. In 1894 the station has been separated from the academy and made independent. Its staff consists of the manager, three assistants, two chemists. At present the management is entrusted to the professor of plant culture. The station has its own housing and grounds. There is also a sub-station in activity at Arad. Annually expenditure: L 1600.

Station for milk control and dairying. Milk control, determination of fat content and bacterological investigations are considered to be the chief objects of this station which soon will be housed and equipped so as to be able to begin its activity.

The station is also intended to be a permanent source of information for farmers as to the most practical methods in butter- and cheese-making. For annually expenditure an amount of L 330 will be appropriated the staff will consist of a manager and two assistants.

Permanent agricultural consulting committee. This committee consists of members of the instructional force of the academy and was organized in 1893 by special order of the Ministry of agriculture as a body for information in cases of questionability and in relation with agriculture and its branches. Information is given on applying by letter free of fee, only in cases which involve the necessity of a journey to the place where information is wanted, expenses must be paid by the applicant. Until now on an average 90—100 farmer availed themselves annually of this institution.

Students clubs and circles.

Association for pecuniary aid. This association was organized in 1872 for the scope of paying board and cost for students with inadequate means. It recruits its members year-by-year out of the number of those who enter the academy as well-to-do students. The fund of this benevolent fraternity amounts at present to L 1600 part of the interest of which is devoted for maintaining a „mensa academica“ a kind of free board for students who are unable to provide for themselves.

Kazinczy club. It was organized in 1859 with the aim of inculcating love of country and to cultivate hungarian literature. The club takes its name from Kazinczy a great hungarian poet, it has established and maintains a fine library containing quite a score of volumes of agricultural as well as sociable literature.

For the promotion of social intercourse among its members the club has established a reading room where most of the agricultural periodicals and daily papers issued in Hungary are kept on file. The yearly Kazinczy ball in January is a brilliant social festival.

Circle for vocal and other music. This circle is of old standing, it has been reorganized in 1898 and is devoted partly to part songs for men's voices partly to instrumental music. It was organized to promote practising of music as a pastime and pleasure and for social intercourse among its members. A band is formed by such members of this circle who are good musicians. This band which executes national music as perfectly and ardently as any regular gipsy band of Hungary, contributes much towards the succes of the divertisements and festivities arranged throughout the year by the students.

Agricultural club. It was organized in 1875 for the promotion of agricultural knowledge and social intercourse among its members.

It holds fourtnightly meetings, gives lectures by its members and issues bulletins. At the meetings agricultural topics are discussed. The club invites competition for prizes for the best essay's on agricultural themata.

Athletic club. It was organized in 1881 and reorganized twice in 1895 and 1899. The aim of this club is the encouragement of athletic exercises and games and the promotion of physical-culture and social intercourse among its members.

All the students clubs transact their business and keep their records in hungarian language.

Land attached to the academy.

Farm of the academy. The farm of the academy comprises 590 acres; of these 343 are gouvernment propriety the rest is lease hold. The arable land is 573 acres. An eight-course system of rotation is adopted on 150 acres and a ten-course system on 210 acres, the remainder of the land is devoted mainly to raise foddercrops from it. The following head of live-stock are kept:

draught horses	10
draught oxen	20
cows of the Swiss-Simmenthal breed . . .	60
Sheep	30
Pigs	20

By the keeping of the above enumerated stock also is pursued the breeding of fine farm animals for distribution and sale. The farm buildings are good and substantial and of modern style, farm machines and implements are employed to a great extent. The equipment of the farm on so considerable a scale enables the students to become practically aquainted with the managment of live-stock and implements. The annual production of milk is from 210000—240000 pints. Fresh whole milk sells at one penny the pint, different kinds of cheese are made selling at reasonable prices. In the vicinity of large places which is the case with us it in generally pays better to sell the milk directly away from the dairy house than to make butter or cheese. Growing of seed for sale and distribution is also part of the business of the farm. The land is well manured. As the rotations adopted differ materially from those common in Great Britain we find it is worth while to transcribe them here.

Eight-course system of rotation adopted on first class soil:

1) beets (mangels) for fodder manured.
2) Spring-eventually winter wheat.
3) $^{1}/_{2}$ vetches with rye followed by green maize manured, $^{1}/_{2}$ green maize manured.
4) Winter wheat manured.
5) Maize for seed manured.
6) Spring barley, lucerne and sanfoin.
7, 8) Lucerne and sanfoin.

Ten-course system of rotation adopted on second class soil:

1) Oats with vetches manured, clover and grass seeds.
2, 3) Clover with grass seeds.
4) Winter rye.
5) Maize for seed manured.
6) Winter cereals.
7) Hungarian grass. (Setaria germanica.)
8) Maize for seed manured.
9) Winter cereals.
10) Hungarian grass.

Garden of the academy. The garden of the academy consists of 20 acres; its area is devoted partly to nurseries of fruit trees as well as ornamental trees and shrubs, partly to the raising of vegetables and the cultivation of flowers. The water necessary for the garden is supplied by a wind motor. For bee-keeping two wooden houses are in the garden.

Vineyard. The vineyard has an area of $2^{1}/_{2}$ acres and is stocked with a great variety of vines, grafted as a remedy against the attacks of the phylloxera upon american grapes.

Experiment plots for plant culture. An area of 20 acres is divided into 18 plots of $^{7}/_{10}$ acres each and into 152 smaller ones for the purpose of the cultivation of plants which for any reason have importance as farmplants. On and in the neighbourhood of this area buildings had been erected for weighing, measuring drying and curing the crops and seeds and for a supervisors dwelling. On the experimental plots the students get easily acquainted with all kinds of fieldcrop- and forageplants and with the methods of their cultivation.

TIME TABLES

showing how the time of the students of the royal agricultural academy is occupied during the week.

Junior year — winter term.

(lasting from October to March).

Monday. Chemistry (8—9), farm animals (9--10), mineralogy (10—11), weights, measures, yields, prices, wages and other figures of importance to farmers (10—12). — Mechanics (2—3), plant anatomy and physiology (3—4).

Tuesday. Chemistry (8—9), farm animals (9—10), mineralogy (10—11). From 11—12 the students are occupied in the chemical laboratory. — Mechanics (2—3), plant anatomy and physiology (3—4).

Wednesday. Chemistry (8—9), farm animals (9—10), plant anatomy and physiology (10—11). From 11—12 chemical laboratory work. — (2—3) Mechanics, (3—4) plant anatomy and physiology.

Thursday. Anatomy and physiology of farm animals (8—9), zoology (9—10). The time from 10—12 is devoted to work in the botanical laboratory and in the bone room. — (2—3) chemistry, (3—4) anatomy and physiology of farm animals.

Friday. Anatomy and physiology of farm animals (8—9), zoology (9—10). The two hours from (10—12) are devoted to work in the botanical laboratory and in the bone room. — (2—3) climatology. The hour from (3—4) is devoted to practical teaching on the premises of the farm and in the stables.

Saturday. Anatomy and physiology of farm animals (8—9), zoology (9—10). From 10—12 occupation in the botanical laboratory and in the bone room. — (2—3) climatology. (3—4) practical teaching on the farm and in the stables.

Junior year — summer term.

(lasting from March to August.)

Monday. Plant culture (7—8), dairying (8—9), plant culture (9—10). The two hours from 10—12 are devoted to work in the chemical laboratory. — The afternoon hours from 2—6 are devoted to the practical study of soils and plant culture in the fields.

Tuesday. Plant culture (7—8), cattle breeding (8—9), plant culture (9—10). Two hours chemical laboratory work. — During the afternoon hours from 2—6 practical teaching in the fields and on the premises of the farm including plant culture, soils and machinery.

Wednesday. Chemistry (7—8), soils (8—9), cattle breeding (9—10). From 10—12 the students are occupied partly in the chemical laboratory, partly in the stables. — In the afternoon hours the occupation is the same as on Monday and Tuesday afternoon.

Thursday. Botany (7—9), soils (9—10), agricultural machines (10—11). — In the course of the afternoon the students are occupied partly in the laboratory of plant diseases partly in the dairy.

Friday. Botany (7—9), chemistry (9—10), agricultural machines (10—11). — Afternoon occupation the same as on Thursday afternoon.

Saturday. Botany (7—8), chemistry (8—10), agricultural machinery (10—11). — Of the afternoon hours one is devoted to plant determination from specimens brought from the fields, one hour to matters connected with the management of the academy farm, two hours are devoted to a round on the farm for the purpose of practical instruction.

Senior year — winter term.

(lasting from October to March).

Monday. (8—9) book-keeping, (9—10) farm management, (10—11) political economy, (11—12) laboratory work. — (2—3) poultry breeding, bee-keeping, fish- and silkwormculture. (3—4) rural technology comprising the destilling of spirits and beer brewing.

Tuesday. (8—9) book-keeping, (9—10) farm management, (10—11) political economy, (11—12) laboratory work. — (2—3) Horse breeding, (3—4) rural technology.

Wednesday. (8—9) book-keeping, (9—10) farm management, (10—11) political economy. — (2—3) Horse breeding, (3—4) rural technology.

Thursday. (8—9) Fieldcrops, (9—10) farm management, (10—11) fieldcrops. — (2—3) rural constructions, (3—4) poultry farming, bee-keeping, fish- and silkwormculture.

Friday. (8—9) Fieldcrops, (9—10) sylviculture, (10—11) fieldcrops. — (2—3) rural constructions.

Saturday. (8—9) Fieldcrops, (9—10) sylviculture, (10—11) rural constructions. — (2—3) rural constructions, (3—4) meadow-culture.

Senior year — summer term.

(lasting from March to August).

Monday. (7—8) Rural law, (8—9) sylviculture, (9—10) statistics, (10—12) laboratory work. — (2—3) Sheep- and swine breeding, (3—4) rural technology comprising wine- and sugarmaking.

Tuesday. (7—8) Rural law, (8—9) sylviculture, (9—10) statistics, (10—12) care of farm animals. — (2—3) Sheep- and swine breeding, (3—4) rural technology.

Wednesday. (7—8) Sheep- and swine breeding, (8—9) farm management and valuation, (9—10) statistics, (10—11) Viti- and horticulture. — (2—3) Surveying,*) (3—4) rural technology.

Thursday. (7—8) Veterinary science, (8—9) Surveying, (9—10) farm management and valuation, (10—11) Viti- and horticulture. — The afternoon hours are devoted to practical teaching of sylviculture and surveying in the field.

Friday. (7—8) Veterinary science, (8—9) surveyiug, (9—10) farm management and valuation, (10—11) Viti- and horticulture. — The afternoon hours serve for practical teaching in viti- and horticulture as well as in bee-keeping and silkwormculture.

Saturday. (7—8) Veterinary science, (8—9) surveying, (9—10) farm management and valuation, (10—11) Viti- and horticulture. — The afternoon is devoted to practical instruction in sheep-keeping and classification of wool.

Once a week the library is open to students. They are admitted to its use free of charge the time only for returning the books being restricted as a rule to two weeks.

In each of the four terms not only are the theoretical lectures thoroughly carried out, but in every respect practical exercises with experiments and demonstrations **) form an essential portion of the course. The experimental field, the garden as well as the farm of the academy although. situated outside of the town itself are still within easy access.

Attendance at lectures and in the laboratories is compulsory. There are roll-calls at unannounced hours and absence is not tolerated except on account of illness, which must be proved by medical certificate. Failure to pass a satisfactory examination at the end of each term severs the student at once from his connection with the academy.

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*) Land surveying and levelling.

**) Demonstration with us is the term for eye-teaching.

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